

a beamformer circuit that samples and delays the continuous time input signal and generates discrete time sampled signals;

a summing circuit that generates an electronic representation of the region of interest with the delayed discrete time sampled signals;

an interface unit connected to the probe housing;

a data processor housing having a memory and a data processor, the data processor generating ultrasound images from the electronic representation of the region of interest;

a cable connecting the interface unit to the data processor housing such that the electronic representation is conducted along the cable to the data processor; and

a display for presenting ultrasound images transferred from the processor.

26. (Amended) The system of claim 25 wherein the hand-held probe housing is selected from the group comprising a linear array probe, a curved array probe, and a phased array probe.

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40. (Amended) An ultrasound imaging system comprising:

a hand-held probe housing having a transducer array, the transducer array receiving signals from a region of interest and that generates an input signal;

a beamformer circuit that samples the input signal and that generates discrete time sampled signals, the beamformer circuit delaying the discrete time sampled signals;

a summing circuit that generates an electronic representation of the region of interest with the delayed discrete time sampled signals; and

a cable that connects an interface unit to a personal computer having a memory, a processor, a graphical user interface and a display such that the electronic representation is conducted along the cable to the

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computer and is processed in the processor to generate ultrasound images, the ultrasound images being transferred to the display.

50. (Amended) The system of claim 40 wherein the transducer array comprises a plurality of rows, each row comprising a linear array.

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51. (Amended) The system of claim 40 wherein the transducer array comprises a plurality of parallel rows such that one of the rows is longer than another of the rows.
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53. (Amended) The system of claim 40 wherein the personal computer further comprises a Windows operating system.
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(Please add new Claim(s) 61 through 80.)

61. (New) The system of claim 25 wherein the display is integral with the data processor.

62. (New) The system of claim 25 wherein the display is located at a site remote from the data processor.

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63. (New) The system of claim 25 further comprising generating a plurality of images of the region of interest for display and selecting one of the images for display on the display.

64. (New) The system of claim 63 further comprising storing the selected image in a memory.

65. (New) The system of claim 63 wherein the plurality of images further comprises images of moving objects processed using a Doppler processor.

66. (New) The system of Claim 25 wherein the electronic representation of the region of interest further comprises one of digital signal data and analog signal data.
67. (New) The system of claim 25 further comprising a video compression device in communication with the data processor.
68. (New) The system of claim 40 wherein the display is integral with the data processor.
69. (New) The system of claim 40 wherein the display is located at a site remote from the data processor.
70. (New) The system of claim 40 further comprising generating a plurality of images of the region of interest for display and selecting one of the images for display on the display.
71. (New) The system of claim 70 further comprising storing the selected image in a memory.
72. (New) The system of claim 70 wherein the plurality of images further comprises images of moving objects processed using a Doppler processor.
73. (New) The system of Claim 40 wherein the electronic representation of the region of interest further comprises one of digital signal data and analog signal data.
74. (New) The system of claim 40 further comprising a video compression device in communication with the data processor.
75. (New) An ultrasonic diagnostic imaging system comprising:

an ultrasonic array probe;
a personal computer platform having a central processing unit (CPU) and comprising:

a beamformer control circuit to control a plurality of differential delays used by a beamformer in response to signals from a region of interest;

signal processing software for performing at least one of multi-dimensional and Doppler processing of processed signals from a region of interest; and

display processing software for performing display processing of said processed signals; and

a display coupled to said personal computer platform to receive processed signals for display of an ultrasonic image.

76. (New) The ultrasonic diagnostic imaging system of claim 75 wherein said personal computer platform further comprises a memory.

77. (New) The ultrasonic diagnostic imaging system of claim 75 wherein said signal processing software and said display processing software are executed by said CPU.

78. (New) An ultrasonic diagnostic imaging system comprising:
an ultrasonic array probe; and
a personal computer platform having a central processing unit (CPU) and comprising:
a buffer memory to store shared digital data from a region of interest;
signal processing software for processing said shared digital data from the region of interest to generate digital images of the region of interest; and

a display coupled to said signal processing software for displaying said digital images of the region of interest.

79. (New) The ultrasonic diagnostic imaging system of claim 78 wherein said personal computer platform further comprises a scan conversion circuit.

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80. (New) The ultrasonic diagnostic imaging system of claim 78 wherein said personal computer platform further comprises a beamformer control circuit.